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EXAMINER	
SOLOMON, GARY L	

ART UNIT	PAPER NUMBER
2615	3

DATE MAILED: 04/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/603,927	Applicant(s) NAKASHIBA, YASUTAKA	
	Examiner Gary L Solomon	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-12 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-12 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 9 is objected to because of the following: There is insufficient antecedent basis in the parent claims for the phrase "the light shielding state". Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "sufficiently high" in claim 11 is a relative term, which renders the claim indefinite. The term "sufficiently high" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Sano (US 5,514,888).

3. For claim 1, Sano discloses a solid-state image pickup device formed of a photoelectric conversion part having (ABSTRACT):

a photoelectric conversion region (Figure 1, Elements 43) and a logic circuit part (See Figure 1, Elements 44 and 51; Note that the transfer gate is a switch and therefore is broadly interpreted as a logic circuit part.) on a semiconductor substrate (Figure 1, Element 41) and outputs a potential change caused by the charges generated in said photoelectric conversion region (Column 6, Lines 7-27),

comprising light shielding layer covering the logic circuit part (Figure 1, Element 56, 58, 60), and

a light shielding film (Figure 1, Elements 54) defining the region of beam incidence on said photoelectric conversion region (Figure 1, Elements 43), where the light shielding film (Figure 1, Elements 54) is provided at a height closer to said semiconductor substrate than said light shielding layer (Figure 1, Element 56; Column 4 through Column 6).

For claim 2, Sano discloses all the previous limitations of claim 1, and also wherein said light shielding film (Figure 1, Elements 54) is located at an intermediate position between said light shielding layer (Figure 1, Element 56) and said photoelectric conversion region in the direction of beam incidence.

For claim 3, Sano discloses all the previous limitations of claim 1, and also wherein said light shielding film (Figure 1, Elements 54) is provided so as to cover said photoelectric conversion part (Figure 1, Elements 43) as well as to make the light shielding state continuous in the boundary part between said photoelectric conversion part (Figure 1, Elements 43) and said logic circuit part (Figure 1, Element 44; Column 6, Lines 7-27).

The light shielding film (Elements 54) is formed in a shape above the photoelectric conversion portion to slightly cover (See Figure 1) the photoelectric conversion portion (Elements 43). Furthermore, light shielding is clearly shown in Figure 1 as continuously covering the boundary between the photoelectric conversion part and the logic circuit part.

For claim 4, see examiners comments for claim 3. The light-shielding layer is connected to the light shielding film by the underlying smoothing layer (Element 55).

Also for claim 4, Sano discloses all the previous limitations of claims 1 and 3, and also wherein said light shielding film (Figure 1, Elements 54) and light shielding layer (Figure 1, Element 56) are connected in such a manner to make the light shielding state continuous in said boundary part (Figure 1; See the mechanical connection between the two by virtue and note that by virtue of the connected parts the light shielding films arranged so as to cover the boundary.).

For claim 5, Sano discloses all the previous limitations of claims 1 and 3, and also wherein the light shielding film and said light shielding layer have an overlapping part that can be overlapped in the plan view so as to make the light shielding state continuous in said boundary part (Figure 1, Elements 54 and 56; The shielding layer and shielding film are overlapped and held together as shown with the light shielding state clearly being continuous in the boundary part in Figure 1.).

For claim 6, Sano discloses all the previous limitations of claim 1, and also wherein said light shielding film covers said photoelectric conversion region by combining a plurality of layers (Figure 1, Elements 54 are a plurality of light shielding layers.).

For claim 7, Sano discloses all the previous limitations of claim 1, and also wherein said light shielding film defines the region of beam incidence on said photoelectric conversion region

by combining a plurality of layers (Figure 1, Elements 54. The opening between the layers defines the region of beam incidence.).

For claim 8, Sano discloses all the previous limitations of claims 1 and 6, and also wherein said light shielding films (Figure 1, Elements 54) are provided so as to make the light shielding state continuous in their boundary parts (Column 7, Line 60 through Column 8, Line 20. See in Figure 1 that the light shielding state each film is continuous from one boundary part of the film to the other).

For claim 9, Sano discloses all the previous limitations of claims 1, 6, and 8nad also each of the plurality of light shielding films (Element 54), has an overlapping part (the upper horizontal portion and the vertical portion) that can be overlapped in the plan view (overlaps transfer gates) so to make the light shielding state continuous in their boundary parts (light shielding is made continuous from one lower horizontal part, i.e. boundary part, by virtue of overlapping part).

For claim 10, Sano discloses all the previous limitations of claims 1 and 6, and also wherein said light shielding films posses a portion having a boundary part with said light shielding layer (See Figure 1), and a portion that defines the region of beam incidence on said photoelectric conversion region provided at a position closer to semiconductor substrate. The portion of the light-shielding layer closest to the portion of the light-shielding layer closest to the substrate defines the region of beam incidence.

For claim 11, Sano discloses all the previous limitations of claim 1, and also wherein said light shielding layer is formed of a material that has either low light transparency or high light

absorbency such that it its light shielding property is sufficiently high (Column 10, Lines 5-19; Column 13, lines 30-35).

The examiner reads "sufficiently high" as .4% of incident light transmitted though light shielding layers (Column 10, Lines 5-19).

For claim 12, Sano discloses all the previous limitations of claim 1, and also wherein said light shielding film is manufactured in the same process as the manufacturing process of the logic circuit part (Figures 17-22 and Column 13, Lines 8-15).

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary L Solomon whose telephone number is (703)-305-4370. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:00 PM.

5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's primary, Vu Le can be reached on (703)-308-6613.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Or faxed to:

(703) 872-9314, (for informal or draft communications, please label "Proposed" or "Draft")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the customer service number **(703) 306-0377**.

April 2, 2004

VU LE
PRIMARY EXAMINER